

WE CLAIM:

1. A method of curing comprising:
providing a first object;
providing a second object;
placing a first side of a sheet adjacent to a malleable portion of
5 said first object;
placing a second side of said sheet adjacent to a non-malleable
portion of said second object;
placing said first object, second object and sheet into a container;
and
10 removing gas from said container where bridging occurs;
where said bridging extends from said second object to said
sheet.
2. The method of Claim 1 where said step of placing said first object,
second object and sheet into a container comprises:
placing a sheet having coefficient of thermal expansion less than
 13.7×10^{-6} inch/inch degree Fahrenheit per inch into said container.
3. The method of Claim 1 where said step of removing gas from said
container where bridging occurs comprises:
attaching a pump to said container;
removing gas from said container; and
5 providing a pressure within said container between 25 inches of
mercury to 29 inches of mercury.
4. The method of Claim 1, further comprising:
placing said container into an auto-clave; and
providing a pressure between 45 pounds per square inch and 150

pounds per square inch on the outer surface of said container.

5. The method of Claim 1, further comprising:
placing said container into an auto-clave; and
providing a temperature between 250 degrees Fahrenheit and 450 degrees Fahrenheit.
6. The method of Claim 1, further comprising:
positioning said sheet where said sheet extends between 0.25 inches to 0.50 inches from said second object.
7. A product of the process defined in Claim 1.
8. A method of curing comprising:
providing a first object having a malleable portion;
providing a second object having a non-malleable portion;
placing a first side of a sheet adjacent to said malleable portion of
5 said first object;
placing a second side of said sheet adjacent to said non-malleable
portion of said second object;
placing said first object, second object and sheet into a container;
and
10 removing gas from said container where bridging occurs;
where said bridging extends from said second object to said first
object.
9. The method of Claim 8 where said step of placing a first side of a sheet adjacent to said malleable portion of said first object comprises:
placing a first side of a titanium sheet adjacent to said malleable
portion of said first object.

10. The method of Claim 8 where said step of placing a first side of a sheet adjacent to said malleable portion of said first object comprises:

placing a first side of said sheet adjacent to an uncured stringer.

11. The method of Claim 8, where said step of placing a second side of said sheet adjacent to said non-malleable portion of said second object comprises:

placing a second side of said sheet adjacent to a stringer.

12. The method of Claim 8, further comprising:

placing said container into an auto-clave; and

providing a temperature above ambient atmospheric temperature.

13. The method of Claim 8 where said step of placing a second side of said sheet adjacent to said non-malleable portion of said second object comprises:

positioning said sheet where said sheet extends between a
5 quarter inch and a half inch from said second object.

14. The method of Claim 8 where said step of placing a first side of a sheet adjacent to said malleable portion of said first object comprises:

placing a sheet of titanium foil having a thickness between five thousandth of an inch and ten thousandth of an inch adjacent to an uncured
5 wing panel.

15. A product of the process defined in Claim 8.

16. A method of curing an object comprising:
providing an object having a malleable portion;
placing a first side of a sheet adjacent to said malleable portion of
said object;
5 coupling said sheet to said object;
placing said object and said sheet into a container; and
removing gas from said container where bridging occurs;
where said sheet provides pressure to said malleable portion.
17. The method of Claim 16 where said step of removing gas from
said container where bridging occurs comprises:
lowering pressure within said container where said bridging
extends from a portion of said object to said sheet.
18. The method of Claim 16 where said step of removing gas from
said container where bridging occurs comprises:
lowering pressure within said container where said bridging
extends from a first portion of said object to a second portion of said object.
19. The method of Claim 16 where said step of coupling said sheet to
said object comprises:
applying Sol-gel to said first side of said sheet; and
coupling said sheet to said object.
20. . A product of the process defined in Claim 16.

21. A method of joining a stringer and a panel, and curing portions of said panel, comprising:

- providing said stringer;
- providing said panel;
- 5 placing a first side of a sheet adjacent to an uncured portion of said wing panel;
- placing a second side of said sheet adjacent to a cured portion of said stringer;
- placing said stringer, panel and sheet into a nylon bag; and
- 10 removing gas from said nylon bag where bridging occurs.

22. The method of Claim 21, where said bridging extends from said stringer to said sheet.

23. The method of Claim 21, where said bridging extends from said stringer to said panel.

24. The method of Claim 21 where said step of placing a first side of a sheet adjacent to an uncured portion of said panel comprises:

applying a film of Sol-gel between said first side of said sheet and said uncured portion of said panel, and;

- 5 joining said sheet to said uncured portion of said panel.

25. The method of Claim 21 where said step of placing said stringer, panel and sheet into a nylon bag comprises:

applying breather material between said stringer and said sheet.

26. The method of Claim 21 where said step of placing said stringer, panel and sheet into a nylon bag comprises:

applying a release film between said stringer and said sheet.

27. The method of Claim 21 where said step of placing a first side of a sheet adjacent to an uncured portion of said panel comprises:

5 placing a first side of a sheet of titanium having a thickness between 0.005 inches and 0.010 inches, adjacent to an uncured portion of said wing panel.

28. An article of manufacture comprising:

a first composite object having a resin portion and a fiber portion;

5 a second composite object having a resin portion and a fiber portion coupled to said first object; and

5 a sheet disposed between said first composite object and said second composite object,

where said sheet lies adjacent to said resin portion of said first composite object and said resin portion of said second composite object.

29. The article of manufacture of Claim 28 where said sheet has a coefficient of thermal expansion less than 13.7×10^{-6} inch/inch degree Fahrenheit.

30. The article of manufacture of Claim 28 where said sheet extends between 0.25 inches and 0.50 inches from said second composite object.

31. The article of manufacture of Claim 28 where said sheet has a thickness between 0.005 inches and 0.010 inches.

32. An airplane wing comprising:
a stringer having a resin portion;
a wing panel having a resin portion coupled to said stringer; and
a sheet disposed between said stringer and said wing panel;
5 where said sheet lies adjacent to said resin portion of said stringer
and said resin portion of said wing panel.

33. The airplane wing of Claim 32 where said sheet has a coefficient
of thermal expansion less than 13.7×10^{-6} inch/inch degrees Fahrenheit.

34. The airplane wing of Claim 32 where said sheet extends between
a quarter inch and a half inch from said second composite object.

35. The airplane wing of Claim 32 where said sheet has a thickness
between 0.005 inches and 0.010 inches.